

Claim Amendments

Please amend the claims as follows. Applicants note that the originally filed claims were incorrectly numbered in that no Claim 38 existed.

Claims

We Claim:

1. (Currently Amended) A method for preparing asphalt and polymer compositions comprising:
heating a mixture consisting essentially of asphalt and an elastomeric polymer; and
adding from about 0.05 wt% up to 5 weight % of a metal salt based on the weight of the asphalt/polymer mixture in excess of amounts of an organic or inorganic metal salt used as an activator, where the metal of the metal salt is selected from the group consisting essentially of zinc, cadmium, mercury, copper, silver, nickel, platinum, iron, magnesium, and mixtures thereof.
2. (Currently Amended) The method of claim 1 where the metal salt is a metal oxide, ~~is added in an amount (up to 5 wt%) at least about 10 times more than that used when the metal oxide is used as an activator (up to 0.2 wt%), based on the weight of the asphalt/polymer mixture.~~
3. The method of claim 1 where the metal salt is a metal oxide selected from the group consisting of zinc oxide, calcium oxide and combinations thereof.
4. (Cancelled).
5. (Currently Amended) The method of claim 1 where the compatibility of the asphalt and polymer composition is improved as compared with the compatibility

of an identical asphalt and polymer composition having a lesser metal salt amount ~~normally used as an activator.~~

6. (Currently Amended) The method of claim 1 further comprising adding a crosslinker to the mixture, ~~where the crosslinker is selected from the group consisting of a sulfur containing derivative and elemental sulfur and mixtures thereof.~~

7. (Currently Amended) The method of claim 6 where in adding the crosslinker, the crosslinker is selected from the group consisting essentially of elemental sulfur, mercaptobenzothiazole (MBT), thiurams, ~~dithiocarbamates,~~ mercaptobenzimidazole, and mixtures thereof.

8. The method of claim 6 where the metal salt proportion is at least about five times greater than the crosslinker proportion.

9. The method of claim 6 where the crosslinker is present in an amount ranging from about 0.01 to 0.4 wt%, based on the weight of the asphalt/polymer mixture.

10. The method of claim 1 further comprising adding ground tire rubber (GTR) to the mixture of asphalt and an elastomeric polymer.

11. (Currently Amended) The method of claim 10 where the ~~amount of GTR~~ ranges from about 1 to about 20 wt% of the mixture.

12. (Cancelled).

13. (Currently Amended) The method of claim 10 where the GTR and mixture of asphalt and an elastomeric polymer is more homogeneous as compared to an

identical mixture of GTR, asphalt and elastomeric polymer having an lesser amount of metal salt ~~when the metal oxide is used as an activator.~~

14. The method of claim 1 where the asphalt and polymer compositions have reduced gel.

15. (Currently Amended) A method of road building comprising combining the asphalt and polymer compositions made by the method of claim 1 with an aggregate to form a road paving material, and using the material to form road pavement.

16. (Currently Amended) A method of sealing a roof comprising heating the asphalt and polymer compositions made by the method of claim 1 and distributing it over at least a portion of a roof surface.

17. (Currently Amended) A method for preparing asphalt and polymer compositions comprising:

_____ heating a mixture consisting essentially of asphalt and an elastomeric polymer; and

adding a metal oxide ~~in excess of amounts of metal oxide used as an activator~~, where the metal oxide is selected from the group consisting essentially of zinc oxide, iron oxide, copper oxide, magnesium oxide calcium oxide and combinations thereof, and where the metal oxide is added in an amount at least ~~40 times (from about 0.05 wt% up to 5 wt %) more than that normally used (up to 0.1 wt %)~~ based on the weight of the asphalt/polymer mixture; and

where the compatibility of the asphalt and polymer composition is improved as compared with the compatibility of an identical asphalt and polymer composition having a lesser metal oxide amount ~~used when the metal oxide is used as an activator.~~

18. (Currently Amended) The method of claim 17 where the metal oxide is zinc oxide ~~and the zinc oxide is added in an amount ranging from about 0.05 to about 2 wt.% based on the mixture.~~

19. (Currently Amended) The method of claim 17 further comprising adding a crosslinker to the mixture, ~~where the crosslinker is selected from the group consisting of a sulfur-containing derivative and elemental sulfur and mixtures thereof.~~

20. (Currently Amended) The method of claim 19 where in adding the crosslinker, the crosslinker is selected from the group consisting of elemental sulfur, mercaptobenzothiazole (MBT), thiurams, ~~dithiocarbamates,~~ mercaptobenzimidazole, and mixtures thereof.

21. (Cancelled).

22. (Cancelled).

23. (Currently Amended) A method for preparing asphalt and polymer compositions comprising:

heating a mixture consisting essentially of asphalt and an elastomeric polymer;

~~adding from about 0.05 wt% up to 5 wt% of a metal oxide in excess of amounts of metal oxide used as an activator,~~ where the metal of the metal oxide is selected from Groups IIA and IIB of the Periodic Table (CAS notation); ~~and~~

adding ground tire rubber (GTR) to the mixture of asphalt and an elastomeric polymer before or after the metal oxide is added; and

where the GTR and mixture of asphalt and an elastomeric polymer is more homogeneous as compared to an identical mixture of GTR, asphalt and elastomeric polymer having an lesser amount of metal oxide ~~when the metal oxide is used as an activator.~~

24. (Currently Amended) The method of claim 23 where the amount of GTR ranges from about 1 to about 20 wt% of the mixture.

25. (Cancelled).

26. (Currently Amended) A polymer modified asphalt (PMA) ~~comprising~~consisting essentially of:

an asphalt;

an elastomeric polymer; and

an organic or inorganic metal salt present in an amount from about 0.05 wt% up to 5 wt% based on the weight of the asphalt/polymer mixture in excess of ~~an amount of metal salt used as an activator~~, where the metal of the metal oxide is selected from the group consisting essentially of zinc, cadmium, mercury, copper, silver, nickel, platinum, iron, magnesium, and mixtures thereof.

27. (Cancelled).

28. The PMA of claim 26 where the metal salt is a metal oxide selected from the group consisting of zinc oxide, calcium oxide and combinations thereof.

29. (Cancelled).

30. (Currently Amended) The PMA of claim 26 where the compatibility of the PMA is improved as compared with the compatibility of an identical PMA having a lesser metal salt amount ~~normally used as an activator~~.

31. (Currently Amended) The PMA of claim 26 further ~~comprising~~consisting of a crosslinker, ~~where the crosslinker is selected from the group consisting of a sulfur containing derivative and elemental sulfur and mixtures thereof.~~

32. (Currently Amended) The PMA of claim 31 where the crosslinker is selected from the group consisting of elemental sulfur, mercaptobenzothiazole (MBT), thiurams, ~~dithiocarbamates~~, mercaptobenzimidazole, and mixtures thereof.
33. (Cancelled).
34. (Cancelled).
35. (Currently Amended) The PMA of claim 26 further ~~comprising~~ consisting of ground tire rubber (GTR).
36. (Currently Amended) The PMA of claim 35 where the ~~amount of~~ GTR ranges from about 1 to about 20 wt% of the PMA.
37. (Currently Amended) The PMA of claim 35 where the metal salt is zinc oxide, ~~and the zinc oxide is added in an amount at least about 8 times more than that used as an activator.~~
39. (Currently Amended) The PMA of claim 35 where the mixture of GTR and PMA is more homogeneous as compared to an identical mixture of GTR and PMA having an lesser amount of metal salt ~~when the metal salt is used as an activator.~~
40. The PMA of claim 26 where the PMA has reduced gel.
41. A road made from the PMA of claim 26 and aggregate.
42. A roof sealed with the PMA of claim 26.

43. (Currently Amended) A polymer modified asphalt (PMA) ~~comprising~~consisting essentially of:
asphalt;
an elastomeric polymer; and
a metal oxide present in an amount at least ~~10 times (from about 0.05 wt%~~
up to 5 wt% based on the weight of the asphalt/polymer mixture) ~~more than that~~
~~used as an activator (up to 0.1 wt %)~~, where the metal oxide is selected from the
group consisting essentially of zinc oxide, calcium oxide and combinations
thereof; and

where the compatibility of the asphalt and polymer composition is
improved as compared with the compatibility of an identical asphalt and polymer
composition having a lesser metal oxide amount ~~used when the metal oxide is~~
~~used as an activator.~~

44. The PMA of claim 43 where the metal oxide is zinc oxide and the zinc
oxide is present in an amount ranging from about 0.05 to about 2 wt.% based on
the combined amount of asphalt and elastomeric polymer.

45. (Currently Amended) The PMA of claim 43 further ~~comprising~~consisting
of a crosslinker.

46. (Currently Amended) The PMA of claim 45 where the crosslinker is
selected from the group consisting of elemental sulfur, mercaptobenzothiazole
(MBT), thiurams, ~~dithiocarbamates~~, mercaptobenzimidazole, and mixtures
thereof.

47. The PMA of claim 45 where the metal oxide proportion is at least about
five times greater than the crosslinker proportion.

48. (Cancelled).

49. (Currently Amended) A polymer modified asphalt (PMA) ~~comprising~~consisting essentially of:

a mixture of asphalt and an elastomeric polymer;

a metal oxide in an amount at least 0.05 wt% up to 5 wt% based on the weight of the asphalt/polymer mixture present in an amount in excess of an amount of metal oxide used as an activator, where the metal of the metal oxide is selected from Groups IIA and IIB of the Periodic Table (CAS notation); and where the elastomeric polymer is ground tire rubber (GTR); and

where the GTR and mixture of asphalt and an elastomeric polymer is more homogeneous as compared to an identical mixture of GTR, asphalt and elastomeric polymer having an lesser amount of metal oxide ~~when the metal oxide is used as an activator.~~

50. (Currently Amended) The PMA of claim 49 where the ~~amount of~~ GTR ranges from about 1 to about 20 wt% of the mixture.

51. (Cancelled).